"送电到乡"工程的目标和要求

Objective and Requirement of Township Electrification Program

国家发展计划委员会基础产业司 史立山 处长

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中国电力工业的简要情况(截止2000年底)

Brief Introduction About Electrical Power Situation of China (end of 2000)

全国发电装机容量(世界第二)

338 MkW

Total installed Capacity (No.2 of the world) 338 MkW

全年发电量(世界第二)

1483.8 G kWh

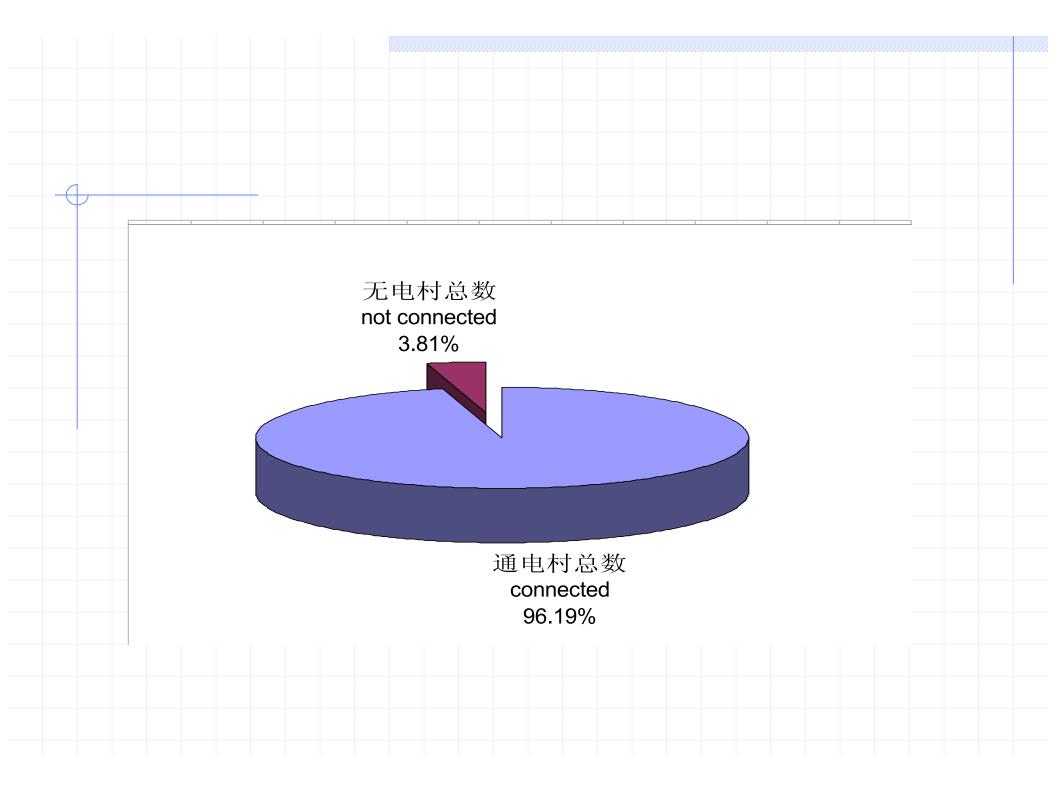
Annual Output (No.2 of the world)

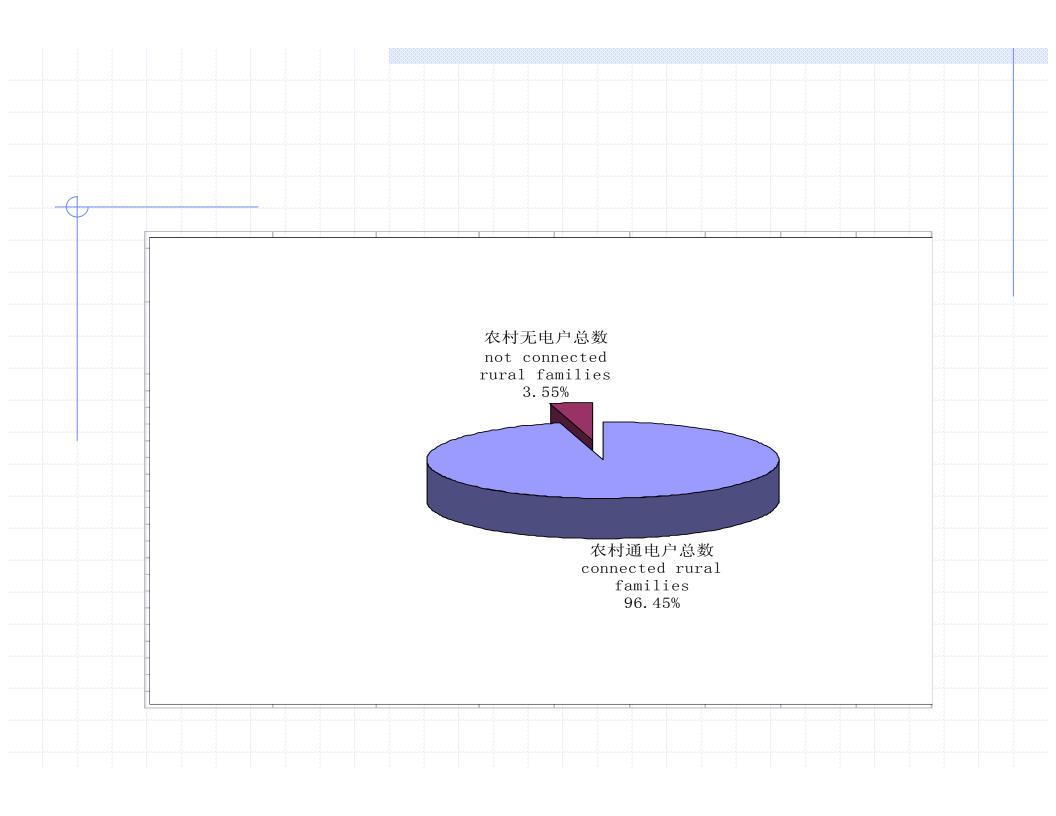
1483.8 G kwh

电力发展存在的主要问题 Main Problems of the Power Sector

- 1. 电网结构和覆盖不能满足要求。
 Structure and coverage of power net does not satisfy the needs
- 2. 电源结构过分依赖煤炭,不合理。
 Power resource is too much relying on coal, It is not rational
- 3. 管理体制不适应新形势要求
 Managing structure is not adaptable to new position of development
- 4. 边远地区仍有3000多万无电人口。
 There are still about 30 million people without connection to grid.







中国未通电率最高的10个省(按未通电户的比例排序) The First 10 Provinces with Unelectrified Households (list according to rate of the households)

序号 No	省份 Provi nce	rural	未通电户数 Unelectrifie dhouseholds		村落总数 Total No. of villages	未通电 村落数 Unelectrified Villages	村落未通电率
1	西藏 Tibet	367,000	289,300	78.83	7,306	5,254	71.91
2	贵州 GuiZhou	7,087,000	1,294,000	18.26	25,847	3,377	13.07
3	新疆 Xinjiang	1,872,600	316,200	16.89	8,934	563	6.30
4	海南 Hainan	999,000	160,300	16.05	2,633	253	9.61
5	青海 Qinghai	671,000	101,000	15.05	4,054	774	19.09
6	云南 Yunnan	8,064,000	1,003,800	12.45	13,423	528	3.93
7	甘肃 Gansu	4,403,000	488,700	11.10	17,803	1,045	5.87
8	宁夏 Ni ngxi a	810,000	64,000	7.90	15,616	1,306	8.36
9	内蒙古 Inner Mongolia	3,477,000	249,590	7.18	13,993	2,360	16.87
10	广西 Guangxi	8,779,000	388,600	4.43	14,816	700	4.72

选点条件 Condition:

- 1. 全乡无一村通电; There is no a village has been supplied in the township.
- 2. 电网延伸供电不经济; It is not feasible to extent grid to supply.
- 3. 只安排乡政府所在村; Only for the village where local government is allocated.
- 4. 优先安排小水电,无水资源则安排光电或风/光互补Small hydro-power shall be the first choice, if there is no hydro-resource, PV or PV/wind hybrid shall be considered
- 5. 容量以满足当地生活用电为原则;Capacity shall meet living needs.
- 6. 同步建设好电网; Mini-grid shall be erected in the meanwhile.

"送电到乡"工程规模 Total Installation of the Program

总共 1061 个无电乡 (约 100万 人口)

Total 1061 townships (about 1 million people) including:

小水电	Small F	lydro-p	ower	378	

光伏发电(PV Power) 666

风光互补(PV / wind Hybrid) 17

光伏总容量 (PV capacity) 20 MWp

小水电容量 (Hydro-capacity) 200 MW

送电到乡工程 Song Dian Dao Xiang" (Township Electrification Program)

- ◆项目目标:到2004年,中国西部省(区)电网难以 覆盖的乡政府所在村落,因地制宜地应用可再生能 源技术(太阳能、风能和小水电等)可持续发展地 获得了可靠的电力供应。
- The Objective of the "Township Electrification Program":
 to reliably and continuously supply power to those
 township locations where is not feasible to be connected by
 extension of grid in the Western provinces by adaptable
 RE technologies in the light of the realities of specific
 regions (PV, wind, small hydro or hybrids) in a
 sustainable way

项目目标定义 1-2 Definition the Objective 1-2

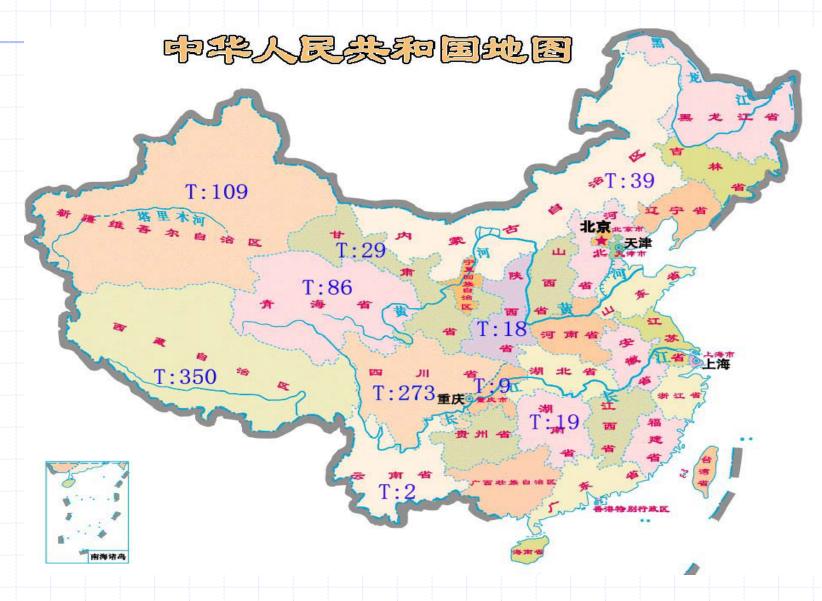
◆ 西部省(区):西藏、新疆、青海、甘肃、内蒙古、四川、重庆、陕西、云南、湖南

Western provinces: Tibet, Xinjiang, Qinhhai, Gansu, Inner Mongolia, Sichuan, Chongqing, Shaanxi, Yunnan and Hunan

◆ <u>因地制宜</u>: 科学合理地利用当地可再生能源资源, 遵循在保证基本供 电要求前提下最低供电成本原则实现优化系统设计

in the light of the realities of specific regions: to use the most reliable RE technology which adapts to the local realities in principal of least cost of power supply based on satisfying basic electricity demand (lighting, TV, public facilities)

项目省(区) Map of Project Provinces



项目目标定义 3 Definition the Objective 3

▼ 可持续发展:系统正常运行至少15年;有确定的服务公司按照商业化机制负责系统的规范运行维护;有益于生态环境保护;当地用户按照用电量支付合理的电费;当地教育、医疗、文化等经济和社会发展条件显著改善,群众生活质量明显提高,经济发展比未通电时期明显加快,民族团结、社会稳定、边疆巩固得到加强。

sustainable way: The installed PV systems work at least 15 years. Specialized power supply companies run the systems in commercial way. It is sound for environment. Users pay reasonable tariff. Local social and economical development conditions are improved, and the development is obviously faster than period without power supply, unity of nationalities is strengthened, society become more stable.

项目目标定义 4 Definition the Objective 4

◆可靠的电力供应:供电品质应达到规范标准,供电可靠性对于公益单位保障率不低于97%,一般用户不低于93%。对于居民基本生活用电(照明、收音机、电视)给予充分保证。系统储备容量为当前合同负荷的30%。

reliably and continuously supply: Quality of the power supply reached the specified standard, the supply reliability reached 97% to public facilities, at least 93% to normal users. Basic living requirements (light, radio, TV) are satisfied. Reserved system capacity shall be 30% of the present contracted load.

投资 Investment

国债+地方配套

National Debt + Local matching fund

项目建设 Construction

公开招标,选择专业化、有经验的研究和生产单位作为系统工程承包商

Select professional and experienced research institutes and companies as the system integrators through public biddings

保证所安装系统持久有效运行,持久有效发挥作用的关键:

Key issues for keeping the system normal operation in long time:

1. 建立科学规范的运行管理机制

To install canonical management system

2. 做好运行人员的培训和管理工作

To train and manage local operators to reach quality requirements

下一步

Next Steps

"送电到乡"工程只是解决边远无电地区用电的第一步,

The Township Electrification Program is only the first step

各级政府有责任解决其余约2万个无电村的用电问题

Chinese governments are obligated to supply the remained about 20 thousand villages which are not foreseen to be connected by grid

"送电到乡"工程将为后续工程积累宝贵经验

The Township Electrification Program should comulate valuable experiences for next programs

请各位专家畅所欲言,贡献你们的聪明才智和丰富的经验!

Please kindly contribute your wisdom and experiences!

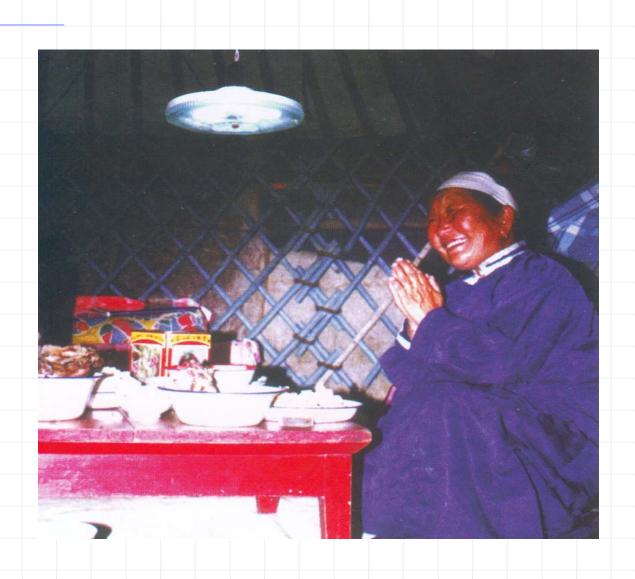


边远山村的群众期盼早日建成电站 People are expecting RE stations



有了电灯生活方便多了

It is really good to have a electrical light





电给我们带来发展机遇

The power offers us a better opportunities to develop local economy and improve living conditions

